**AMENDMENTS TO THE CLAIMS**:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-9. (Cancelled)

10. (Currently Amended) A tag for electronic article identification, comprising at least two magnetic elements representing an identity of the tag, or of an article to which the tag is attached, said magnetic elements being electromagnetically detectable, wherein:

the magnetic elements are formed as wires made from an amorphous or nano-crystalline metal alloy;

the magnetic elements are arranged at different predetermined angular positions ~~angles to each other;~~

at least one of the magnetic elements has a length, which is different from the length of at least one other magnetic element of the tag;

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at least one of the magnetic elements has a diameter, which is different from the diameter of at least one other magnetic element of the tag;

wherein the lengths and diameters of the magnetic elements, and the angles between them, jointly form the identity of the tag.

11. (Previously Presented) A tag according to claim 10, wherein the diameters of the magnetic elements are selected from a range between 10 and 100$\mu$m.

12. (Currently Amended) A tag according to claim 10, wherein the lengths of the magnetic elements are selected from a range between 40 and 100 ~~m~~$\mu$m.

13. (Previously Presented) A tag according to claim 10, wherein each magnetic element is provided with a coating of dielectric material, such as glass.

14. (Previously Presented) A tag according to claim 10, wherein the amorphous or nano-crystalline metal alloy of each magnetic element exhibits a Giant Magnetoimpedance-effect when exposed to electromagnetic energy of high frequency and magnetic energy of lower frequency.

15. (Previously Presented) A tag according to claim 10, wherein the amorphous or nano-crystalline metal alloy of each magnetic element has a majority ratio of cobalt.

16. (Previously Presented) A tag according to claim 10, wherein the composition of the amorphous or nano-crystalline metal alloy of each magnetic element is $(Fe_{0.06}Co_{0.94})_{72.5}Si_{12.5}B_{15}$.

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17. (Currently Amended) A method of encoding an identity code into an electronic article identification tag having a plurality of magnetic elements, said identity code comprising a plurality of words at respective positions in a numeral system, each word being capable of storing one of n different values, comprising

providing a first set of lengths for magnetic elements, wherein at least one magnetic element is provided with a length that is different from the length of at least one other magentic element of the tag;

providing a second set of diameters for magnetic elements, wherein at least one magnetic element is provided with a diameter that is different from the diameter of at least one other magnetic element of the tag;

forming a third set of element types by associating one unique length among said first set of lengths, and one unique diameter among said second set of diameters, with each respective element type,

mapping each of said *n* different values to a respective element type;

providing a fourth set of different angular positions for magnetic elements;

arranging in said tag, for each word in said identity code, a magnetic element of the type corresponding to the value of the word, at one angular position among said fourth set of different angular positions.

18. (Currently Amended) An article identification apparatus, where an individual article is provided with a tag ~~comprising~~ including a plurality of ~~angularly arranged~~ magnetic elements arranged at different angular positions, each magnetic element having a length and a diameter, where the lengths, diameters, and angular positions of the magnetic elements define an identity of the tag, the apparatus comprising:

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a transmitter ~~means~~ for transmitting a first electromagnetic signal in a detection zone;

a receiver ~~means~~ for receiving a second electromagnetic signal~~,~~ generated by the tag in response to the first electromagnetic signal from the transmitter ~~means~~;

a ~~modulating means~~ modulator for generating a magnetic field for modulating the second electromagnetic signal during the generation thereof by the tag;

a ~~demodulating means~~ demodulator for producing a reply signal by demodulating the second electromagnetic signal as received by the receiver ~~means~~; and

a controller operatively connected to the ~~demodulating means~~ demodulator;

wherein:

the ~~modulating means~~ modulator is arranged to generate a magnetic modulating field having a rotating orientation~~,~~;

~~wherein~~ the controller is arranged to detect when a frequency shift occurs for the reply signal and in response determine an angular position of ~~an individual~~ each magnetic element;

the ~~modulating means~~ modulator is arranged to generate a magnetic modulating field with increasing amplitude~~,~~; ~~wherein~~

the controller is arranged to determine a corresponding change in amplitude of the reply signal and in response determine a length of ~~said individual~~ each magnetic element;

the ~~modulating means~~ modulator is arranged to generate a magnetic modulating field with increasing amplitude~~,~~;

~~wherein~~ the controller is arranged to continuously monitor an amplitude of the reply signal so as to detect a saturation point thereof and in response determine a diameter of ~~said individual~~ each magnetic element; and

~~the modulating means and the controller are arranged to repeat the steps above for all magnetic elements of the tag, wherein~~

the controller is arranged to determine an identity of the tag from the angular positions, lengths, and diameters of the magnetic elements.